GIS Function Coupling for Virtual Globes, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

Virtual Globe (VG) systems such as Google Earth, NASA World Winds and Microsoft Virtual Earth provide captivating animated 3D visualizations and support user queries for information at a point. NASA MSFC's VG-based Real Time Mission Monitor (RTMM) enhances management and tracking of field experiment missions. The National Weather Service's RIDGE service uses VG to disseminate radar and support decision assistance. Simpson Weather Associate's Doppler Wind Lidar uses VG technology provided by WxAnalyst to manage field experiment instrumentation and data acquisition in flight. WxAnalyst has recently prototyped the WxAzygy

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Interface to couple external applications with Google Earth (GE). Such user applications are inherently unlimited, and can embrace Geographic Information System (GIS) by inclusion of licensed GIS or the OGC GeoTools open source. Full GIS coupling through a transparent and overlaid interface would provide a standard means for complex user operations in the VG environment. The independence of this interface decouples external functions from the VG, can provide security/privacy where needed, and could potentially encourage VG evolution. Our vision for GIS-VG coupling involves the concept of a "focus object" which is mutually shared by the VG and Interface. This focus object is described in GE by KML 2.2. GE interaction is currently supported through an Application Programmer Interface (API) downloaded with each installation. The GE API could become the basis for a standard and be potentially extended. Possible capabilities in situ with VG include spatial data selection and cross referencing, comparison and cross-correlation of simultaneous and collocated data objects with disparate geometries, and interaction with data servers to acquire, load and subset data "on the fly". This type of new technology will enable greater utilization of extremely large, complicated, and highly distributed datasets on all spatial scales over large geographic areas.

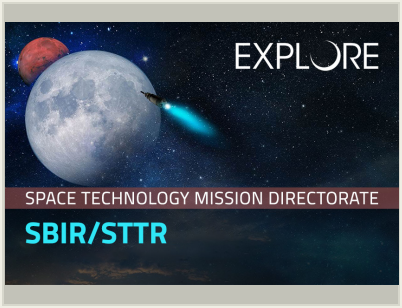

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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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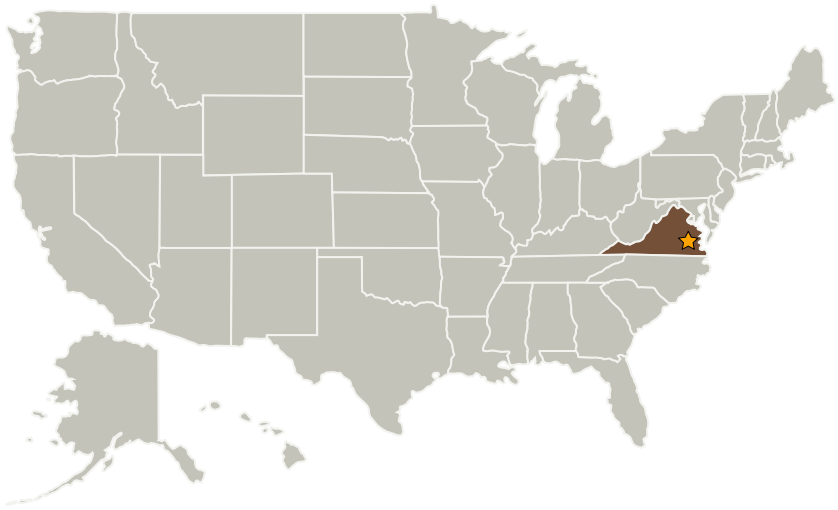
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
WxAnalyst, LTD	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Fairfax, Virginia

Primary U.S. Work Locations
Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.4 Information Processing
    - TX11.4.2 Intelligent Data Understanding